

Patent Claims

1. Field device (1) for monitoring and/or determining a process variable
5 of a medium, wherein the process variable is preferably a fill level,
viscosity or density of the medium, comprising
an oscillatable unit (10),
a driving/receiving unit (11), which excites the oscillatable unit (10) to
oscillate, or which receives oscillations of the oscillatable unit (10), as the
10 case may be
and
a control/evaluation unit (12), which controls the oscillations of the
oscillatable unit (10), or which evaluates the oscillations of the
oscillatable unit (10), as the case may be,
15 characterized in that
the control/evaluation unit (12) produces an accretion alarm,
when the oscillation frequency (f) of the oscillations of the oscillatable
unit (10) falls below an adjustable limit value (G ; G_{Minimum} ; G_{Maximum}),
wherein the limit value (G ; G_{Minimum} ; G_{Maximum}) is determinable and/or
20 calculable at least from measured and/or calculated dependencies of the
oscillation frequency (f) on process conditions and/or on the process
variable to be monitored and/or determined.
2. Field device (1) as claimed in claim 1,
25 characterized in that
the process variable is fill level,
and
the limit value (G) is determinable and/or calculable as a function of the
use of the field device (1), whether as a minimum switch (G_{Minimum}) or as
30 a maximum switch (G_{Maximum}).

3. Field device (1) as claimed in claim 1 or 2,
characterized in that
the limit value (G ; G_{Minimum} ; G_{Maximum}) is determinable and/or calculable
5 from the smallest oscillation frequency (f) as a function of the maximum
(with reference to the field device (1)) allowable process conditions
and/or as a function of the maximum (with reference to the field device (1))
and/or with reference to the application) allowable process variable to be
monitored and/or determined.

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4. Field device (1) as claimed in claim 1, 2 or 3,
characterized in that
the limit value (G ; G_{Minimum} ; G_{Maximum}) is determinable and/or calculable
taking into consideration a maximum allowable accretion, or a frequency
15 change associated with the maximum allowable accretion.

5. Field device (1) as claimed in claim 1, 2 or 3,
characterized in that
the process conditions involve temperature and/or pressure and/or
20 density and/or viscosity and/or fill level of the medium.

6. Field device (1) as claimed in one or more of the claims 1 to 5,
characterized in that
a review unit (13) is provided, which produces an accretion alarm
25 independently of the control/evaluation unit (12), when the oscillation
frequency (f) of the oscillations of the oscillatable unit (10) falls below an
adjustable limit value (G ; G_{Minimum} ; G_{Maximum}).

7. Field device (1) as claimed in claim 1 or 2,
30 characterized in that

the control/evaluation unit (12) produces a "free" report,
when the oscillation frequency (f) of the oscillations of the oscillatable
unit (10) exceed an adjustable over-value (O),
wherein the over-value (O) is determinable and/or calculable from
5 measured and/or calculated dependencies of the oscillation frequency (f)
on the process variable to be determined and/or to be monitored.

8. Field device (1) as claimed in claim 7,
characterized in that

10 the over-value (O) is determinable and/or calculable from a greatest
oscillation frequency (f) as a function of corresponding maximum (in
reference to the field device (1)) allowable process conditions and as a
function of the oscillatable unit (10) oscillating uncovered.

15 9. Field device (1) as claimed in claim 7 or 8,
characterized in that
the over-value (O) is determinable and/or calculable taking into
consideration a maximum allowable accretion, or a frequency change
associated with the maximum allowable accretion.